What is claimed is:

1. A method of fabrication of a bond pad structure, comprising the steps of:

a) providing a top wiring layer and a top dielectric layer over a semiconductor structure;

b) forming a buffer dielectric layer over said top wiring layer and said top dielectric layer;

c) forming a buffer opening in said buffer dielectric layer exposing at least of portion of said top wiring layer;

d) forming a barrier layer over said buffer dielectric layer, and said top wiring layer in said buffer opening;

e) forming a conductive buffer layer over said barrier layer;

f) planarizing said conductive buffer layer to form a buffer pad in said buffer opening;

g) forming a passivation layer over said buffer pad and said buffer dielectric layer;

h) forming a bond pad opening in said passivation layer over at least a portion of said buffer pad;

i) forming a bond pad support layer over said buffer pad and passivation layer;

j) forming a bond pad layer over said bond pad support layer;

k) patterning said bond pad layer and said bond pad support layer to form a bond pad and bond pad support.

2. The method of claim 1 wherein said top wiring layer is comprised of Cu alloy; said top wiring layer is a damascene interconnect.

3. The method of claim 1 wherein said top dielectric layer is comprised of oxide made from tetraethylorthosilicate (TEOS) reactants and has a thickness between 6750 and 8250 Å.

4. The method of claim 1 wherein said top dielectric layer is comprised black diamond ™ film.

5. The method of claim 1 wherein said top dielectric layer is comprised an oxide based low k dielectric material with a K equal or less than 3.0.

6. The method of claim 1 wherein said buffer dielectric layer is comprised of TEOS oxide and has a thickness between 6750 and 8250 Å.

7. The method of claim 1 wherein said barrier layer is comprised of Ta or a bilayer comprised of a Cr layer and a Cr-Cu layer; said barrier layer has a thickness between 360 and 440 Å.

8. The method of claim 1 wherein said conductive buffer layer is comprised of an aluminum alloy with between a 99.45 and 99. 55 wt % aluminum and between 0.45 and 0.55 wt % copper; said conductive buffer layer has a thickness between 6750 and 8250 Å.

9. The method of claim 1 wherein the planarization of said conductive buffer layer comprises a chemical-mechanical polish step.

10. The method of claim 1 wherein said passivation layer is comprised of a three layer structure of (1) lower silicon nitride layer , (2) undoped silicate glass layer and (3) upper silicon nitride layer; and has a thickness between 13500 and 16500 Å.

11. The method of claim 1 wherein said bond pad opening has an area between 2500 and 10000 sq μm.

12. The method of claim 1 wherein said buffer opening is larger than said bond pad opening; said buffer opening extends beyond said bond pad opening on all sides.

13. The method of claim 1 wherein said bond pad support layer is comprised of a material selected from the group consisting of Ti, TiW, W and Cr; and has thickness between 2000 and 6000 Å.

14. The method of claim 1 wherein said bond pad layer comprised of an Al-Cu alloy with Al between 99.45 and 99. 55 wt % and Cu between 0.45 and 0.55 % ; said bond pad layer has a thickness between 6000 and 15000 Å; and said buffer pad underlies the entire bond pad.

15. The method of claim 1 wherein said buffer pad underlies the entire bond pad; said buffer pad has a larger area than said bond pad by between 10 % and 30 % of the area of the bonding pad.

16. A method of fabrication of a bond pad structure; comprising the steps of:

a) providing a top wiring layer and a top dielectric layer over a semiconductor structure;

(1) said top wiring layer comprised of Cu alloy; said top wiring layer is a damascene interconnect;

(2) said top dielectric layer is comprised of TEOS oxide and has a thickness between 6750 and 8250 Å;

b) forming a buffer dielectric layer over said top wiring layer and said top dielectric layer;

(1) said buffer dielectric layer is comprised of TEOS oxide and has a thickness between 6750 and 8250 Å;

c) a buffer opening in said buffer dielectric layer exposing at least of portion of said top wiring layer;

d) forming a barrier layer over said buffer dielectric layer, and said top wiring layer in said buffer opening;

(1) said barrier layer is comprised of Ta or a bilayer comprised of a Cr layer and a Cr-Cu layer; said barrier layer has a thickness between 360 and 440 Å;

e) forming a conductive buffer layer over said barrier layer;

(1) said conductive buffer layer is comprised of an Aluminum alloy with between a 99.45 and 99. 55 wt % aluminum and between 0.45 and 0.55 wt % copper; said conductive buffer layer has a thickness between 6570 and 8250 Å;

f) planarizing said conductive buffer layer to form a buffer pad in said buffer opening;

(1) the planarization of said conductive buffer layer comprises a chemical-mechanical polish step;

g) forming a passivation layer over said buffer pad and said buffer dielectric layer; said passivation layer is comprised of a three layer structure of (1) lower silicon nitride layer, (2) undoped silicate glass (USG) layer, and (3) upper silicon nitride layer; and has a thickness between 13500 and 16500 Å;

h) forming a bond pad opening in said passivation layer over at least a portion of said buffer pad

i) forming a support layer over said buffer pad and said buffer dielectric layer;

(1) said bond pad support layer is comprised of a material selected from the group consisting of Ti, TiW, and Cr; and has thickness between 2000 and 6000 Å;

j) forming a bond pad layer over said bond pad support layer;

(1) said bond pad layer comprised of an Al-Cu alloy and said bond pad layer has a thickness between 6000 and 15000 Å;

k) patterning said bond pad layer and said bond pad support layer to form a bond pad and bond pad support;

(1) said buffer pad underlies the entire bond pad; said buffer pad has a larger area than said bond pad by between 10 % and 30 % of the area of the bonding pad.

17. A bond pad structure comprising:

a) a top wiring layer and a top dielectric layer over a semiconductor structure;

b) a buffer dielectric layer over said top wiring layer and said top dielectric layer;

c) a buffer opening in said buffer dielectric layer exposing at least of portion of said top wiring layer;

d) a buffer pad and a barrier layer over said buffer dielectric layer and said top wiring layer in said buffer opening;

e) forming a passivation layer over said conductive buffer pad and said buffer dielectric layer;

f) a bond pad opening in said passivation layer over at least a portion of said buffer pad

g) a bond pad and bond pad support over said passivation layer over at least a portion of said buffer pad. in at least said bond pad opening.

18. The bond pad structure of claim 17 wherein said top wiring layer is comprised of Cu alloy; said top wiring layer is a damascene interconnect.

19. The bond pad structure of claim 17 wherein said top dielectric layer is comprised of TEOS oxide and has a thickness between 6750 and 8250 Å.

20. The bond pad structure of claim 17 said top dielectric layer is comprised black diamond ™ film.

21. The bond pad structure of claim 17 said top dielectric layer is comprised an oxide based low k dielectric material with a K equal or less than 3.0.

22. The bond pad structure of claim 17 wherein said barrier layer is comprised of Ta or a bilayer comprised of a Cr layer and a Cr-Cu layer; said barrier layer has a thickness between 360 and 440 Å.

23. The bond pad structure of claim 17 wherein said conductive buffer layer is comprised of an Aluminum alloy with between a 99.45 and 99. 55 wt % Aluminum and between 0.45 and 0.55 wt % copper; said conductive buffer layer has a thickness between 6750 and 8250 Å.

24. The bond pad structure of claim 17 wherein said passivation layer is comprised of a three layer structure of (1) lower silicon nitride layer, (2) undoped silicate glass layer and (3) upper silicon nitride layer; and has a thickness between 13500 and 16500 Å.

25. The bond pad structure of claim 17 wherein said bond pad support layer is comprised of a material selected from the group consisting of Ti or TiW, and Cr; and has thickness between 2000 and 6000 Å.

26. The bond pad structure of claim 17 wherein said bond pad layer comprised of an Al-Cu alloy and said bond pad layer has a thickness between 6000 and 15000 Å; and said buffer pad underlies the entire bond pad.

27. The bond pad structure of claim 17 wherein said buffer pad underlies the entire bond pad; said buffer pad has a larger area than said bond pad by between 10 % and 30 % of the area of the bonding pad.